



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/550,486

09/26/2005

Michio Kubota

KUBOTA 16

2976

1444 7590 08/20/2009  
BROWDY AND NEIMARK, P.L.L.C.  
624 NINTH STREET, NW  
SUITE 300  
WASHINGTON, DC 20001-5303

EXAMINER

WATTS, JENNA A

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

08/20/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,486	<b>Applicant(s)</b> KUBOTA ET AL.	
	<b>Examiner</b> JENNA A. WATTS	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 5/22/2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Amended Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase “wherein said saccharide-derivative of  $\alpha$ ,  $\alpha$ -trehalose mixed with said non-saccharide ingredient(s) in said step of mixing is in an amorphous form” does not appear to be supported by the original disclosure, therefore, it appears to constitute new matter.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Amended Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. It is still unclear whether the amorphous form refers to the saccharide-derivative of  $\alpha$ ,  $\alpha$ -trehalose prior to its mixing with the non-saccharide ingredient, or if the mixture of the two compounds is in an amorphous form.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**7. Claims 1, 3, 7, 8, 9, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruta, et al. (EP 0606753), made of record by Applicant.**

8. Regarding Claims 1, 3, 11, 12 and 14, Maruta teaches a method of powderizing orange juice and the powdered orange as a powdery composition (Page 29, Example B-6, lines 19-20), comprising the steps of mixing said non-saccharide ingredient of orange juice, which is deemed a processed agricultural product, with a powder rich in non-reducing saccharides (Page 29, lines 20-21), and powderizing the resulting mixture (Page 29, lines 17 and 23-26). Maruta teaches that the resulting product was stable for a relatively long period of time without giving an unsatisfactory taste and smell (Page 29, lines 27-28).

9. Maruta teaches that trehalose or  $\alpha$ ,  $\alpha$ -trehalose, has been known for long as a non-reducing saccharide consisting of glucose units. Maruta teaches a method of preparing non-reducing saccharides with the use of enzymes (Page 21, Experiment 12, lines 19-24), and teaches that it was revealed that the enzyme preparation forms one or more non-reducing saccharides, which has a trehalose structure as an end unit and a degree of glucose polymerization of 3 or higher, which is deemed to be the saccharide derivative claimed by Applicant in Claim 1 (Page 21, lines 21-24). Maruta further teaches that the resultant non-reducing saccharides of the present invention have a

Art Unit: 1794

relatively-lower reducing power and a relatively-higher stability than reducing partial starch hydrolysates, compounds which readily react to form browning, smell and deterioration of their quality (Page 2, lines 45-49). Because of the increased stability of the non-reducing saccharides of the invention, these non-reducing saccharides can be mixed and processed with other materials, especially amino acids, and amino acid-containing substances without a fear of causing an unsatisfactory browning, smell and deterioration of the materials (Page 10, lines 41-45). Maruta teaches that the present non-reducing saccharides can be arbitrarily used as a sweetener, taste improving agent, stabilizer, excipient and desiccant in a variety of compositions such as food products, etc. (Page 11, lines 9-12). Maruta further teaches that the present non-reducing saccharides can be used intact, or if necessary, they can be mixed with an excipient, filler and binder and formed into granules, spheres, shot-rods, tablets, prior to their use and Maruta also teaches that the non-reducing saccharides are highly acid- and heat-resistant (Page 11, lines 20-23 and 27-28).

10. Maruta does not specifically teach using a saccharide derivative of  $\alpha$ ,  $\alpha$ -trehalose, which derivative is specifically a non-reducing saccharide having a trehalose structure as an end unit and a glucose polymerization degree of three or more in the above stated powderizing method with a non-saccharide.

11. However, it would have been obvious to one of ordinary skill in the art at the time of the invention, for the method of powderizing a non-saccharide ingredient taught by Maruta to have comprised the claimed saccharide derivative of  $\alpha$ ,  $\alpha$ -trehalose, because Maruta teaches a method of preparing the claimed saccharide derivative of  $\alpha$ ,  $\alpha$ -

Art Unit: 1794

trehalose and teaches that such saccharides have increased stability and non-reducing power and can be used in a wide variety of food applications as sweeteners, taste improving agents, etc. One of ordinary skill in the art would have been motivated by Maruta to incorporate the claimed saccharide derivative of  $\alpha$ ,  $\alpha$ -trehalose into powderizing compositions with non-saccharide ingredients in order to create stable and desirable food products that have a decreased risk of browning and general deterioration of quality over time.

12. Regarding Claim 7, Maruta is taken as cited above in the rejection of Claim 1 and teaches using a powder rich in non-reducing saccharides that is mixed with a non-saccharide (Page 29, lines 20-21), the powder rich in non-reducing saccharides deemed amorphous due to Applicant's disclosure of amorphous powders (see instant specification, Page 28, lines 15 and 25-26).

13. Regarding Claim 8, Maruta teaches that 50 parts by weight of a powder rich in non-reducing saccharides is combined with 33 parts by weight of a powdered orange juice, along with 10 parts by weight of sucrose, 0.65 parts by weight of anhydrous citric acid, 0.1 part by weight of malic acid, 0.1 part by weight of L-ascorbic acid, 0.1 part by weight of sodium citrate, 0.5 part by weight of pullulan and an adequate amount of a powdered flavor (Page 29, lines 19-23). Therefore, the non-reducing saccharide is present in an amount of 5% (w/w) or higher to the total weight of the powdery composition, on a dry solid basis.

14. Regarding Claim 9, Maruta teaches that the resulting mixture is fed to a fluidized-bed granulator and granulating by spraying it with a syrup to form the powdered juice

Art Unit: 1794

composition (Page 29, lines 24-26), thus Maruta is deemed to teach a spray-drying method.

15. Regarding Claim 13, Maruta is taken as cited above in the rejection of Claims 1 and 8 and is deemed to teach a base for powderizing a non-saccharide ingredient comprising the claimed saccharide derivative as an effective ingredient because Maruta teaches that the non-reducing saccharide is present in the highest proportion in the powdered orange juice composition (see rejection of Claim 8).

**16. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maruta, et al. (EP 0606753), made of record by Applicant, in view of Yoshiaki (JP Patent Application No. 08-020581), previously cited of record by Examiner.**

17. Maruta is relied upon as above in the rejection of Claim 1.

18. Maruta is taken as cited above in the rejection of Claims 1 and 8, and teaches the use of pullulan in the powdered composition, which is an emulsifier as per Applicant's disclosure (see instant specification, Page 9, line 10). However, Maruta does not specifically teach a step of powderizing an emulsion mixture, containing emulsifier, water with a non-saccharide ingredient.

19. Yoshiaki teaches a stable functional material excellent in storage stability and applicable to various kinds of food, drinks, powdered drinks and pharmaceutical applications without causing adverse effects on fragrance, tone, palatability, etc. (Page 2, Paragraph 4 and Page 3, Paragraph 14 of the machine translation of JP Application), wherein a mixture containing a functional substance, such as DHA, which is deemed a

Art Unit: 1794

non-saccharide,  $\alpha$ ,  $\alpha$ -trehalose (Page 2, Paragraph 5 of the machine translation of JP Application), an emulsifier and water (Page 1, lines 15-23 of the machine translation of JP Application) are homogenized and then spray dried to obtain a powdered functional material (Page 1, lines 25-27 of machine translation of JP Application). Yoshiaki further teaches incorporating other ingredients into a powdered drink comprising sodium citrate, sugar, and vitamin C (Page 5, Paragraph 28 of the machine translation of JP Application).

20. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention for the powderized composition taught by Maruta to have further comprised a step of powderizing an emulsion mixture and a non-saccharide, as taught by Yoshiaki, because Yoshiaki teaches that the resulting powdered functional material excels in storage stability and is applicable in foods, powdered drinks and pharmaceutical applications, without causing adverse effects on the particular application chosen. One of ordinary skill in the art would have been motivated to combine an emulsion mixture with trehalose or a trehalose derivative, and a non-saccharide ingredient in order to create a stable, powdered composition that has a wide range of applicability, and does not impart any negative attributes on the particular application chosen.

### ***Response to Arguments***

21. The objection of Claim 2, as set forth in the office action mailed on 2/27/2009 has been withdrawn in view of Applicant's arguments filed on 5/22/2009.



Art Unit: 1794

22. The 35 U.S.C. 112 2<sup>nd</sup> paragraph rejection of Claims 3, 4 and 8 has been withdrawn in view of Applicant's arguments filed on 5/22/2009.

23. The 35 U.S.C. 112 2<sup>nd</sup> paragraph rejection of Claim 7 has been maintained in light of the fact that it is still unclear to the Examiner whether the amorphous form refers to the saccharide derivative itself or to the mixture of the saccharide derivative and the non-saccharide.

24. Applicant's arguments on Pages 9-12, filed 2/27/2009, with respect to the rejection(s) of Claim(s) 1-9 and 11-14 under 35 U.S.C. 103 (a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Maruta as set forth above. It is the position of the Examiner that the limitations of amended claim 1 are found to be obvious over Maruta, as highlighted in the rejection set forth above. Furthermore, it is noted that Yoshiaki is used in the rejection of Claim 10 to show that it is known to combine a form of  $\alpha$ ,  $\alpha$ -trehalose with an emulsifier, water and a non-saccharide in order to obtain a stable powder that is applicable in powdered drink compositions.

### ***Conclusion***

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1794

26. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNA A. WATTS whose telephone number is (571) 270-7368. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. SAYALA/

Primary Examiner, Art Unit 1794

/JENNA A. WATTS/

Examiner, Art Unit 1794

August 14, 2009